#### **IN THE CLAIMS**

Please cancel claims 85 through 89 without prejudice or disclaimer of their subject matter, and amend claims 1, 6, 11, 14, 21 through 24, 65, 70, 75, 92, 101, 102, and 121 as follows:



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# 1. (currently amended) A plug, comprising:

a first base bearing a keyway providing a first electrical conductor and an orifice spaced-apart from and separated by a mass of said plug from said keyway;

a second base separated by an axial length of said plug from said first base, said second base disposed to support a cam, said mass being perforated by a plurality of radially oriented apertures forming an array;

an exterior surface extending between and engaging said first base and said second base;

a sidebar positioned between said first base and said second base to reciprocate between a first location with said sidebar simultaneously engaging said plug and a cylinder surrounding said plug, and a second location releasing said plug for relative [[to]] movement between the cylinder and said plug;

a locking mechanism disposed within said apertures to move relative to said plug in response to a key inserted into said keyway to accommodate reciprocation of said sidebar relative to said plug and rotation of said plug relative to the cylinder when the key while inserted into said keyway engages in a selected relation with said locking mechanism, and obstructing said reciprocation absent said selected relation;

a second electrical conductor terminating with an electrical contact exposed to an exterior of said first base through said orifice;

an electronic logic circuit borne by said plug while coupled to receive electrical data signals via said first and second electrical conductors, and generating control signals in dependence upon said electrical power and data signals; and

an electrical operator disposed within one of said apertures, said operator having a distal member travelling in dependence upon said control signals between a first position relative

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to said exterior surface obstructing said relative movement by engaging a detent protruding from the cylinder, and a second and different position relative to said exterior surface accommodating said relative movement.

- 2. (previously presented) The plug of claim 1, comprising said locking mechanism, logic circuit and electrical operator simultaneously experiencing said rotation relative to the cylinder whenever said plug rotates relative to the cylinder.
- 3. (previously presented) The plug of claim 1, comprising said locking mechanism, logic circuit and electrical operator being wholly within the cylinder and travelling with said plug whenever said plug moves relative to the cylinder.
- 4. (previously presented) The plug of claim 1, with said electrical operator maintaining said distal member within said plug with said distal member extended not beyond said exterior surface while said distal member is in said first position, and maintaining said distal member in concurrent engagement with said plug and with the detent while said distal member is in said first position.
- 5. (previously presented) The plug of claim 1, with said electrical operator maintaining said distal member within said plug with said distal member extending not beyond said exterior surface while said distal member is in said first position, and moving said distal member radially between relative to said exterior surface in dependence upon said control signals.
  - 6. (currently amended) A lock, comprising:
- a cylinder containing a hollow recess defining a longitudinal axis and a stationary detent extending from said cylinder;
- a plug bearing a plurality of open radially oriented apertures forming an array, said plug being rotatable around said longitudinal axis while resident within said hollow recess, said plug comprising:

a first base bearing a keyway providing a first electrical conductor and an orifice spaced-apart from and separated by a mass of said plug from said keyway;

a second base separated by an axial length of said plug from said first base, said second base disposed to support a cam;

an exterior surface extending between and engaging said first base and said second base;

a sidebar positioned between said first base and said second base to create an obstruction to relative movement between said cylinder and said plug;

a locking device disposed within said apertures to release [[and]] <u>an</u> obstruction when the key while inserted into said keyway engages in a selected relation with said locking [[means]] <u>device</u>, and to maintain said obstruction absent said selected relation;

a second electrical conductor terminating with an electrical contact exposed to an exterior of said first base through said orifice;

an electronic logic circuit borne by said plug, coupled to receive electrical data signals via said first and second electrical conductors, and generating control signals in dependence upon said electrical power and data signals; and

an electrical operator borne by said plug, disposed within one of said apertures, said operator having a distal member radially traveling along an axis transverse to said longitudinal axis, in dependence upon said control signals between a first position relative to said exterior surface by engaging said detent and thereby obstructing said movement in concert with said locking device and a second and different position relative to said exterior surface accommodating said movement.

- 7. (previously presented) The plug of claim 6, comprising said locking device, logic circuit and electrical operator simultaneously experiencing said rotation relative to the cylinder whenever said plug rotates relative to the cylinder.
- 8. (previously presented) The plug of claim 6, comprising said locking device, logic circuit and electrical operator being wholly within the cylinder and travelling with said plug whenever said

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- 9. (previously presented) The plug of claim 6, with said electrical operator maintaining said distal member within said plug with said distal member extended not beyond said exterior surface while said distal member is in said second position, and maintaining said distal member in engagement with said detent while said distal member is in said first position.
- 10. (previously presented) The plug of claim 6, with said electrical operator maintaining said distal member within said plug with said distal member extending not beyond said exterior surface while said distal member is in said first position.

#### 11. (currently amended) A lock, comprising:

- a shell containing a hollow recess defining a longitudinal axis and an interior cylindrical surface, said shell bearing a detent extending into said shell;
- a plug rotatable around said longitudinal axis while resident within said hollow recess, and a bar interposed between said shell and said plug generally along a radial plane engaging both said shell and said plug while obstructing rotation of said plug within said recess, said plug comprising:
  - a first base providing a first electrical conductor;
  - a second base separated by an axial length of said plug from said first base; an exterior surface extending between and engaging said first base and said second base;
  - a locking device responsive to a key inserted into said keyway accommodating relative movement between said shell and said plug when the key while inserted into said keyway engages in a selected relation with said locking device and obstructing said relative movement absent said selected relation;
  - a second electrical conductor terminating with an electrical contact exposed to an exterior of said first base through said orifice;

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an electrical operator having a distal member moving relative to said detent, in dependence upon said control signals between a first orientation relative to said exterior surface enabling said relative movement and a second and different orientation relative to said exterior surface obstructing said relative movement when said distal member at least

first and second electrical conductors, and generating control signals in dependence upon

an electronic logic circuit coupled to receive electrical data signals via said

partially surrounds said distal member detent.

said data signals; and

12. (previously presented) The plug of claim 1, further comprised of said:

electrical operator comprising an electrical coil coaxially aligned with said distal member, to move said distal member between said second position and said first position in response to said control signals; and

said distal member bearing a circumferential surface blocking said relative movement while said distal member is in said second position, and a variation in said circumferential surface accommodating said relative movement while said distal member is in said first position.

13. (previously presented) The plug of claim 6, further comprised of said:

electrical operator comprising an electrical coil coaxially aligned with said distal member, to move said distal member between said second position and said first position in response to said control signals; and

distal member bearing a circumferential surface engaging said detent while said distal member is in said second position, and a variation in said circumferential surface accommodating said relative movement while said distal member is in said first position.

# 14. (currently amended) A lock, comprising:

a cylinder containing a hollow interior recess defining a longitudinal axis, and bearing a slot within said recess; and



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a plug rotatable from a rest orientation around said longitudinal axis while resident within said hollow recess relative to said cylinder; and

a stationary detent positioned between [[said]] <u>a</u> first end and second end while extending into said slot, and providing simultaneous engagement of said cylinder and said plug while said cylinder remains in said rest orientation;

#### said plug comprising:

[[a]] <u>said</u> first [[base]] <u>end</u> bearing an opening accommodating insertion of a key and providing a first electrical conductor;

[[a]] <u>said</u> second [[base]] <u>end</u> separated by an axial length of said plug from said first [[base]] <u>end</u>, said second [[base]] <u>end</u> disposed to support a cam, said mass being perforated by [[a]] an aperture;

an exterior surface extending between said first [[base]] <u>end</u> and said second [[base]] <u>end</u>;

retaining means oriented to retain a shank of a key inserted into said opening while said plug remains in an orientation other than said rest orientation relative to said cylinder, and to accommodate withdrawal of the key from said opening while said plug is in said rest orientation;

a second electrical conductor terminating with an electrical contact exposed to an exterior of said first base through said orifice;

an electronic logic circuit comprising a memory storing a code, said circuit being borne by said plug and coupled to receive electrical data signals via said first and second electrical conductors, said circuit generating control signals in dependence upon correspondence between said code and information borne by said data signals; and

an electrical operator borne by said plug, said operator having a distal member travelling in dependence upon said control signals between a first position relative to said exterior surface maintaining engagement of said detent and a second and different position relative to said exterior surface accommodating movement between said plug and said cylinder.

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15. (previously presented) The lock of claim 14, further comprising:

said detent being borne by said cylinder; and

said distal member being oriented within said plug to move relative to said plug to accommodate rotation of said plug from said rest orientation relative to the cylinder when a key while inserted into said opening generates said data signals representing information having a selected said correspondence with said code, and obstructing said rotation absent said selected correspondence.

#### 16. (previously presented) The lock of claim 14, further comprising:

said detent comprising an arm arcuately engaging said cylinder and a tooth extending from said arm and through said slot; and

said distal member being oriented within said plug to move relative to said plug to accommodate passage of said tooth relative to said distal member during rotation of said plug from said rest orientation relative to the cylinder when a key while inserted into said opening generates said data signals representing information having a selected said correspondence with said code, and obstructing said rotation of said plug from said rest orientation by engaging said tooth absent said selected correspondence.

# 17. (previously presented) The lock of claim 14, further comprising:

said detent comprising an arm arcuately engaging said cylinder and a tooth extending from said arm and through said slot; and

said distal member being oriented within said plug to move relative to said plug to accommodate passage of said tooth relative to said distal member during rotation of said plug from said rest orientation relative to the cylinder when a key while inserted into said opening generates said data signals representing information having a selected said correspondence with said code, obstructing said rotation of said plug from said rest orientation by engaging said tooth absent said selected correspondence, and accommodating passage of said tooth relative to said distal member

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during rotation of said plug from an orientation other than said rest orientation to said rest orientation.

# 18. (previously presented) The lock of claim 14, further comprising:

said detent comprising an arm arcuately engaging said cylinder and a tooth extending from said arm and through said slot; and

said distal member being oriented within said plug to move relative to said plug to accommodate passage of said tooth relative to said distal member during rotation of said plug from said rest orientation relative to the cylinder when a key while inserted into said opening generates said data signals representing information having a selected said correspondence with said code, and obstructing said rotation of said plug from said rest orientation by engaging said tooth absent said selected correspondence when said rotation is in a first direction, and accommodating said rotation of said plug from said rest orientation despite an absence of said selected correspondence when said rotation is in a second and opposite direction.

#### 19. (previously presented) The lock of claim 14, further comprising:

said detent comprising an arm arcuately engaging said cylinder and a tooth extending from said arm and through said slot; and

said distal member being oriented within said plug in an engagement of said tooth to obstruct said rotation of said plug from said rest orientation, and to move relative to said plug from said engagement of said tooth obstructing said rotation of said plug from said rest orientation to an accommodation of passage of said tooth relative to said distal member during rotation of said plug from said rest orientation relative to the cylinder when a key while inserted into said opening generates said data signals representing information having a selected said correspondence with said code, and continuing said accommodation despite intermittent removal of the key from said opening.

20. (previously presented) The lock of claim 14, further comprising:

said detent comprising an arm arcuately engaging said cylinder and a tooth extending



from said arm and through said slot; and

said distal member being oriented within said plug in an engagement of said tooth to obstruct said rotation of said plug from said rest orientation, and to move relative to said plug from said engagement of said tooth obstructing said rotation of said plug from said rest orientation to an accommodation of passage of said tooth relative to said distal member during rotation of said plug from said rest orientation relative to the cylinder when a key while inserted into said keyway generates said data signals representing information having a selected said correspondence with said code, and continuing said accommodation despite intermittent removal of the key from said opening absent subsequent said generation of data signals representing information having said selected correspondence with said code.

# 21. (currently amended) The lock of claim 16, further comprising:

a sidebar positioned between said first [[base]] <u>end</u> and said second [[base]] <u>end</u> to provide reciprocation between a first location with said sidebar providing simultaneous engagement with said plug and said cylinder, and a second location releasing said plug for rotation relative to the cylinder; and

said electrical operator comprising an electrical solenoid borne by said plug, said distal member comprising an armature travelling in dependence upon said control signals between a third position relative to said exterior surface maintaining said simultaneous engagement and a fourth and different position relative to said exterior surface accommodating said reciprocation.

#### 22. (currently amended) The lock of claim 17, further comprising:

a sidebar positioned between said first [[base]] <u>end</u> and said second [[base]] <u>end</u> to provide reciprocation between a first location with said sidebar providing simultaneous engagement with said plug and said cylinder, and a second location releasing said plug for rotation relative to the cylinder; and

said electrical operator comprising an electrical solenoid borne by said plug, said distal member comprising an armature travelling in dependence upon said control signals between

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a third position relative to said exterior surface maintaining said simultaneous engagement and a fourth and different position relative to said exterior surface accommodating said reciprocation.

#### 23. (currently amended) The lock of claim 18, further comprising:

a sidebar positioned between said first [[base]] end and said second [[base]] end to provide reciprocation between a first location with said sidebar providing simultaneous engagement with said plug and said cylinder, and a second location releasing said plug for rotation relative to the cylinder; and

said electrical operator comprising an electrical solenoid borne by said plug, said distal member comprising an armature travelling in dependence upon said control signals between a third position relative to said exterior surface maintaining said simultaneous engagement and a fourth and different position relative to said exterior surface accommodating said reciprocation.

# 24. (currently amended) The lock of claim 19, further comprising:

a sidebar positioned between said first [[base]] <u>end</u> and said second [[base]] <u>end</u> to provide reciprocation between a first location with said sidebar providing simultaneous engagement with said plug and said cylinder, and a second location releasing said plug for rotation relative to the cylinder; and

said electrical operator comprising an electrical solenoid borne by said plug, said member comprising an distal armature travelling in dependence upon said control signals between a third position relative to said exterior surface maintaining said simultaneous engagement and a fourth and different position relative to said exterior surface accommodating said reciprocation.

#### 25. (previously presented) A lock, comprising:

a shell containing a hollow recess defining a longitudinal axis and an interior cylindrical surface;

a cylinder plug rotatable around said longitudinal axis while resident within said hollow recess;

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a stationary bar borne by said shell and interposed between said shell and said cylinder plug to create an obstruction to rotation of said cylinder plug within said recess;

said cylinder plug comprising:

a first base and a second base separated by an axial length of said cylinder plug from said first base, said second base configured to support a cam; and

an electrical operator borne by said cylinder plug and rotatable with said cylinder plug, said electrical operator being electrically operable to respond to a control signal by moving independently of said bar between one of a first orientation accommodating relative movement between said shell and said cylinder plug and a second and different orientation maintaining obstruction of said relative movement by engaging said bar, and another of said first orientation and said second orientation.

# 26. (previously presented) The lock of claim 25, further comprised of:

a logic circuit generating said control signal in response to a comparison between a code set within said logic circuit and a data signal applied to said logic circuit; and

said electrical operator moving between said second orientation and said first orientation in response to said control signal.

- 27. (previously presented) The lock of claim 25, further comprised of a key retainer maintaining a shank of a key within said cylinder plug during rotation of said cylinder plug relative to said shell.
- 28. (previously presented) The lock of claim 27, further comprised of a locking mechanism borne by said cylinder plug, said cylinder plug being perforated by an aperture admitting reciprocal travel of a key relative to said locking mechanism, and said locking mechanism obstructing movement of said cylinder plug relative to said shell absent the key exhibiting a selected relation with said locking mechanism.



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- 29. (previously presented) The lock of claim 25, further comprised of a plurality of electrical conductors borne by said lock to engage a circuit in a key inserted into said cylinder plug.
- 30. (previously presented) The lock of claim 25, further comprised of a power source to energize said electric operator, positioned to rotate with said cylinder plug relative to said shell.
- 31. (previously presented) The lock of claim 30, further comprised of said power source being mounted on a key.
- 32. (previously presented) The lock of claim 25, further comprised of a network of a plurality of cylinder plugs including said cylinder plug, and a switching device controlling operation of said network.
- 33. (previously presented) The lock of claim 32, with said switching device comprising a logic circuit.
  - 34. (previously presented) The lock of claim 1, further comprised of said:
- electrical operator comprising an electrical coil moving said distal member, to reciprocate said distal member between said first position and said second position in response to said control signals; and
- said distal member bearing a circumferential surface blocking said radial movement of said sidebar while said distal member is in said second position, and accommodating said radial movement while said distal member is in said first position.
  - 35. (previously presented) The lock of claim 6, further comprised of said:
- electrical operator comprising an electrical coil moving said distal member, to reciprocate said distal member between said first position and said second position in response to

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said control signals; and

said distal member bearing a circumferential surface blocking said radial movement of said sidebar while said distal member is in said second position, and accommodating said radial movement while said distal member is in said first position.

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- 36. (previously presented) The lock of claim 16, further comprising said distal member bearing a mass engaging said detent and blocking said rotation while said distal member is in said first position, and a groove through said mass accommodating relative passage between said distal member relative to said detent while said distal member is in said second position.
- 37. (previously presented) The lock of claim 16, further comprising said distal member bearing a mass exhibiting a first height accommodating relative passage between said distal member relative to said detent while said distal member is in said second position, and a second and greater height engaging and blocking said rotation while said distal member is in said first position.
- 38. (previously presented) The lock of claim 16, further comprising said distal member bearing a mass having a periphery engaging said detent and blocking said rotation while said distal member is in said first position, and a central variation in said mass relative to said periphery accommodating relative passage between said distal member and said detent while said distal member is in said second position.
  - 39. (previously presented) The lock of claim 25, further comprising:
- a logic circuit generating said control signal in response to a comparison between a code set within said logic circuit and a data signal applied to said logic circuit;
- a conductor provided by said cylinder plug, conveying said data signal to said logic circuit; and
  - said electrical operator moving from said second orientation to said first orientation



in response to said control signal.

40. (previously presented) The lock of claim 39, with said conductor comprising an electrical conductor.

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# 41. (previously presented) The lock of claim 25, further comprising:

a logic circuit borne by said cylinder plug, generating said control signal in response to a comparison between a code set within said logic circuit and a data signal applied to said logic circuit;

a conductor borne by said cylinder plug, conveying said data signal to said logic circuit; and

said electrical operator moving between said second orientation and said first orientation in response to said control signal.

42. (previously presented) The lock of claim 41, with said conductor comprising an electrical conductor.

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#### 43. (withdrawn) A lock, comprising:

a cylinder containing a hollow interior recess defining a longitudinal axis, and bearing a slot within said recess; and

a cylinder plug rotatable from a rest orientation around said longitudinal axis while resident within said hollow recess relative to said cylinder; and

an elongate member positioned between said cylinder and said cylinder plug, and while extending into said slot, preventing rotation between said cylinder and said cylinder plug by making a direct simultaneous engagement of said cylinder and said cylinder plug while said plug remains in said rest orientation and, in response to a torque that is externally applied to said cylinder plug and that causes said rotation of said cylinder plug within said shell, exiting said slot while

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said orifice;

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1 3 accommodates said rotation; said cylinder plug comprising: a first base bearing an orifice spaced-apart from and separated by a mass of said cylinder plug;

maintaining a second simultaneous engagement of said cylinder and said cylinder plug that

a second base separated by an axial length of said cylinder plug from said first base, said second base disposed to support a cam, said mass being penetrated by a radially oriented aperture;

> an exterior surface extending between said first base and said second base; a conductor having a terminal exposed to an exterior of said first base through

an electronic logic circuit comprising a memory storing a code, said circuit being borne by said cylinder plug and coupled to receive data signals via said conductor, said circuit generating control signals in dependence upon a comparison between said code and information borne by said data signal;

an electrical operator mounted within said aperture, said operator having a movable member traveling in dependence upon said control signals between a first position relative to said exterior surface maintaining said simultaneous engagement by blocking movement of said elongated member from said direct simultaneous engagement and a second and different position relative to said exterior surface accommodating movement between said plug and said cylinder; and

a component biasing said movable member to maintain said simultaneous engagement.

# 44. (withdrawn) The lock of claim 43, further comprising:

said elongate member comprising a sidebar positioned between said first base and said second base to reciprocate between a first location while providing said simultaneous engagement, and a second location releasing said plug for rotation relative to said cylinder; and

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said movable member being oriented within said plug to move relative to said plug to accommodate reciprocation of said sidebar relative to said plug and rotation of said plug from said rest orientation relative to the cylinder when a key while inserted into said plug generates said data signals representing information having a selected said comparison with said code, and obstructing said reciprocation absent said selected comparison.

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# 45. (withdrawn) The lock of claim 43, further comprising:

said elongate member comprising an arm arcuately engaging said cylinder and a detent extending from said arm and through said slot; and

said movable member being oriented within said plug to move relative to said plug to accommodate passage of said detent relative to said movable member during rotation of said plug from said rest orientation relative to the cylinder when a key while inserted into said plug generates said data signals representing information having a selected said correspondence with said code, and obstructing said rotation of said plug from said rest orientation by engaging said detent absent said selected correspondence.

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#### 46. (previously presented) A lock, comprising:

a shell containing a hollow recess defining a longitudinal axis and an interior cylindrical surface;

a cylinder plug rotatable around said longitudinal axis while resident within said hollow recess;

a bar borne by said plug and rotatable with said plug relative to said shell, said bar being interposed between said shell and said cylinder plug to reciprocate generally along a radial plane between a first position engaging both said shell and said cylinder plug while obstructing rotation of said cylinder plug within said recess, and a second position accommodating said rotation, said cylinder plug comprising:

a first base and a second base separated by an axial length of said plug from said first base, said second base bearing means for supporting a cam; and

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an electrical operator being electrically operable to respond to an electrical control signal by obstructing movement of said bar between said first position and said second position in response to a first state of said control signal and by moving within a second and different plane not coextensive with said radial plane in response to application of said control signal to accommodate said movement of said bar in response to a second and different state of said control signal.

47. (previously presented) The lock of claim 46, further comprised of said operator directly obstructing movement of said bar between said first position and said second position absent said control signal.

48. (previously presented) The lock of claim 46, further comprised of:

a logic circuit borne by said cylinder plug generating said control signal in response to a comparison between a code set within said logic circuit and a data signal applied to said logic circuit; and

said electrical operator moving to accommodate said movement by said bar in response to said control signal.

- 49. (previously presented) The lock of claim 46, further comprised of a locking mechanism borne by said cylinder plug, said cylinder plug being perforated by an aperture admitting reciprocal travel of a key relative to said locking mechanism, and said locking mechanism obstructing movement of said cylinder plug relative to said shell absent the key exhibiting a selected relation with said locking mechanism.
- 50. (previously presented) The lock of claim 46, further comprised of a plurality of electrical conductors borne by said lock to engage a circuit in a key inserted into said cylinder plug.
  - 51. (previously presented) The lock of claim 46, further comprised of a power source

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energizing said electric operator to move during said second and different state of said control signal, positioned to rotate with said cylinder plug relative to said shell.

- 52. (previously presented) The lock of claim 51, further comprised of said plug containing a keyway, and said power source being mounted on a key insertable into said keyway.
- 53. (previously presented) The lock of claim 46, further comprised of a network of plugs including said cylinder plug, and a switching device controlling operation of said network and said state of said control signal.
- 54. (previously presented) The lock of claim 46, further comprised of:
  said cylinder plug containing a keyway;
  a memory borne by said cylinder plug and storing a code; and
  a logic circuit comprising a memory storing a code, said circuit being borne by said
  cylinder plug and generating said control signal in dependence upon correspondence between said
  code and data borne by a key insertable within said keyway.
- said cylinder plug containing a keyway;

  a memory borne by said cylinder plug and storing a code; and
  a logic circuit comprising a memory storing a code, said circuit being borne by said
  cylinder plug and generating said control signal in dependence upon correspondence between said
  code and data borne by a key insertable within said keyway.

55. (previously presented) The lock of claim 25, further comprised of:

56. (previously presented) A lock, comprising:

a shell containing a hollow recess defining a longitudinal axis and an interior cylindrical surface;

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a plug rotatable around said longitudinal axis while resident within said hollow

an elongate member interposed between said shell and said plug to travel generally along a radial direction between a first position where said elongate member obstructs rotation between said shell and said plug by making a direct simultaneous engagement of both said shell and said plug, and in response to a torque that is externally applied to said plug and causes rotation of said plug within said shell, exiting said recess and traveling to a second position while maintaining a second simultaneous engagement of said shell and said plug that accommodates said rotation;

said plug comprising:

a first base perforated by an aperture, and a second base separated by an axial length of said plug from said first base, said second base bearing means for supporting a cam; a logic circuit borne by said plug and rotatable with said plug, conveying said data signal between said aperture to said logic circuit; and

an electrical operator responding to said control signals by moving independently of said travel by said elongate member in a second direction within a plane that maintains said simultaneous engagement by not aligned with said radial direction between one of a first orientation obstructing said travel and relative operable movement between said shell and said plug while said electrical operator is contained wholly within said plug, and a second and different orientation accommodating said travel and said relative operable movement between said shell and said plug, and another of said first orientation and said second orientation.

Claims 57-63. (Canceled)

#### 64. (previously presented) A lock, comprising:

- a shell containing a hollow recess defining a longitudinal axis and an interior cylindrical surface;
  - a cylinder plug rotatable around said longitudinal axis while resident within said

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hollow recess, said cylinder plug comprising a first base and a second base separated by an axial length of said cylinder plug from said first base, said second base bearing means for supporting a cam; a sidebar interposed between said shell and said cylinder plug to travel generally

along a radial plane between a first position engaging both said shell and said plug while obstructing rotation of said cylinder plug within said recess, and a second position accommodating said rotation; a logic circuit generating an electrical control signal in response to a comparison between a code set within said logic circuit and a data signal applied to said logic circuit;

an electrical conductor provided by said plug, conveying said data signal to said logic circuit; and

an electrical operator borne by said cylinder plug and rotatable with said plug, said electrical operator being electrically operable to respond to said control signal by moving in a different plane independently of said travel by said sidebar, between one of a first orientation providing obstruction of said travel and a second and different orientation accommodating said travel, and another of said first orientation and said second orientation;

said sidebar having a first portion that is positioned to be optionally blocked by another component of said lock functioning independently of said electrical operator to prevent said travel of said sidebar, and a second portion that is positioned to be blocked from said travel by said sidebar to said second position whenever said electrical operator is within said first orientation, and a second portion that is positioned to be optionally blocked by another component of said lock.

#### 65. (currently amended) A lock, comprising:

a shell containing a hollow recess defining a longitudinal axis and an interior cylindrical surface;

a cylinder plug rotatable around said longitudinal axis while resident within said hollow recess, said cylinder plug comprising a first base and a second base separated by an axial length of said cylinder plug from said first base, said second base bearing means for supporting a cam;

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1 2 3 a bar interposed between said shell and said cylinder plug to travel generally along a radial plane between a first position engaging both said shell and said plug while obstructing rotation of said cylinder plug within said recess, and a second position accommodating said rotation;

a logic circuit generating a control signal in response to a comparison between a code set within said logic circuit and a data signal applied to said logic circuit;

an electrical conductor provided by said plug, conveying said data signal to said logic circuit; and

an electrical operator comprising an armature, said armature being borne by said cylinder plug and rotating around said transversely to longitudinal axis with said plug, said electrical operator being electrically operable to respond to said control signal by moving independently of said travel, between one of a first orientation providing obstruction of said travel and a second and different orientation accommodating said travel, and another of said first orientation and said second orientation.

- 66. (previously presented) The lock of claim 65, with said electrical operator further comprising a coil of an electrically conducting material that is borne by said cylinder plug and wound to drive said armature to move from one of said first and second orientations to the other of said first and second orientations in response to said control signal.
- 67. (previously presented) The lock of claim 65, with said electrical operator further comprising a coil of an electrically conducting material that is borne by said cylinder plug and wound to drive said armature to move from said first orientation to said second orientation in response to said control signal.
- 68. (previously presented) The lock of claim 65, with electrical operator further comprising a coil of an electrically conducting material that is borne by said cylinder plug and wound to drive said armature to rotate around an arc in response to said control signal.

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69. (previously presented) The lock of claim 65, with said electrical operator further comprising a coil of an electrically conducting material that is borne by said cylinder plug and wound to drive said armature to reciprocate along a radial axis that is transverse to said radial plane in response to said control signal.

#### 70. (currently amended) A lock, comprising:

a shell containing a hollow recess defining a longitudinal axis and an interior cylindrical surface;

a cylinder plug rotatable around said longitudinal axis while resident within said hollow recess, said cylinder plug comprising a first base and a second base separated by an axial length of said cylinder plug from said first base, said second base bearing means for supporting a cam;

a bar interposed between said shell and said cylinder plug to travel generally along a radial plane between a first position engaging both said shell and said plug while obstructing rotation of said cylinder plug within said recess, and a second position accommodating said rotation;

a <u>logical logic</u> circuit generating said control signal in response to a comparison between a code set within said logic circuit and a data signal applied to said logic circuit;

an electrical conductor provided by said plug, conveying said data signal to said logic circuit; and

an electrical operator borne by said cylinder plug and rotatable with said plug, said electrical operator being electrically operable to respond to an electrical control signal applied to said electrical operator by moving along a geometrical construct other than to said radial plane between one of a first orientation providing obstruction of said travel and a second and different orientation accommodating said travel, and another of said first orientation and said second orientation.

71. (previously presented) The lock of claim 70, with said electrical operator further comprising an armature and a coil of an electrically conducting material that is borne by said cylinder plug and wound to drive said armature to move along said geometric construct in response to said



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control signal.

- 72. (previously presented) The lock of claim 70, with said electrical operator further comprising an armature and a coil of an electrically conducting material that is borne by said cylinder plug and wound to drive said armature to move along said geometric construct in response to said control signal from said second orientation to said first orientation.
- 73. (withdrawn) The lock of claim 70, with said geometric construct comprising an arc and said electrical operator further comprising an armature and a coil of an electrically conducting material that is borne by said cylinder plug and wound to drive said armature to rotate around said arc in response to said control signal.
- 74. (previously presented) The lock of claim 70, with said geometric construct comprising a radial axis that is transverse to said radial plane, and said electrical operator further comprising an armature and a coil of an electrically conducting material that is borne by said cylinder plug and wound to drive said armature to reciprocate along said radial axis in response to said control signal.

#### 75. (currently amended) A lock, comprising:

a shell containing a hollow recess defining a longitudinal axis and an interior cylindrical surface;

a cylinder plug rotatable around said longitudinal axis while resident within said hollow recess, said cylinder plug comprising a first base and a second base separated by an axial length of said cylinder plug from said first base, said second base bearing means for supporting a cam;

a bar interposed between said shell and said cylinder plug to travel generally along a radial plane between a first position engaging both said shell and said plug while obstructing rotation of said cylinder plug within said recess, and a second position accommodating said rotation; a logic circuit generating said control signal in response to a comparison between a



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code set within said logic circuit and a data signal applied to said logic circuit;

an electrical conductor provided by said plug, conveying said data signal to said logic circuit; and

an electrical operator borne by said cylinder plug and rotatable with said plug, said electrical operator being electrically operable to respond to said control signal by moving along rotating around a radial axis that is transverse to said radial plane, between a first orientation providing obstruction of said travel and a second and different orientation accommodating said travel.

#### 76. (previously presented) A lock, comprising:

a shell containing a hollow recess defining a longitudinal axis and an interior cylindrical surface;

a cylinder plug rotatable around said longitudinal axis while resident within said hollow recess, said cylinder plug comprising a first base and a second base separated by an axial length of said cylinder plug from said first base, said second base bearing means for supporting a cam;

a logic circuit generating said control signal in response to a comparison between a code set within said logic circuit and a data signal applied to said logic circuit;

an electrical conductor provided by said plug, conveying said data signal to said logic circuit;

an elongate bar exhibiting a greatest longitudinal dimension along a second axis that extends transversely to said first base and to said second base, said bar being interposed between said shell and said cylinder plug to travel generally along a radial axis that is transverse to said second axis, between a first position engaging both said shell and said plug while obstructing rotation of said cylinder plug within said recess, and a second position accommodating said rotation; and

an electrical operator borne by said cylinder plug and rotatable with said plug, said electrical operator being electrically operable to respond to said control signal by moving along said radial axis between one of a first orientation providing obstruction of said travel and a second and

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different orientation accommodating said travel, and another of said first orientation and said second orientation.

#### 77. (previously presented) A lock, comprising:

a shell containing a hollow recess defining a longitudinal axis and an interior cylindrical surface;

a cylinder plug rotatable around said longitudinal axis while resident within said hollow recess, said cylinder plug comprising a first base and a second base separated by an axial length of said cylinder plug from said first base, said second base bearing means for supporting a cam;

a logic circuit generating said control signal in response to a comparison between a code set within said logic circuit and a data signal applied to said logic circuit;

an electrical conductor provided by said plug, conveying said data signal to said logic circuit;

an elongate bar exhibiting a greatest longitudinal dimension along a second axis that extends transversely to said first base and to said second base, said bar being interposed between said shell and said cylinder plug to travel generally along a radial axis that is radial to said cylinder plug and transverse to said second axis, between a first position engaging both said shell and said plug while obstructing rotation of said cylinder plug within said recess, and a second position accommodating said rotation; and

an electrical operator borne by said cylinder plug and rotatable with said plug, said electrical operator being electrically operable to respond to a control signal by moving between one of a first orientation providing obstruction of said travel and a second and different orientation accommodating said travel, and another of said first orientation and said second orientation.

78. (previously presented) The lock of claim 25, with said electrical operator further comprising an armature and a coil of an electrically conducting material that is borne by said cylinder plug and wound to drive said armature to move from one of said first and second orientations to the

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other of said first and second orientations in response to said control signal.

- 79. (previously presented) The lock of claim 25, with said electrical operator further comprising an armature and a coil of an electrically conducting material that is borne by said cylinder plug and wound to drive said armature to move from said first orientation to said second orientation in response to said control signal.
- 80. (previously presented) The lock of claim 25, with electrical operator further comprising an armature and a coil of an electrically conducting material that is borne by said cylinder plug and wound to drive said armature to rotate around an arc in response to said control signal.
- 81. (previously presented) The lock of claim 25, with said electrical operator further comprising an armature and a coil of an electrically conducting material that is borne by said cylinder plug and wound to drive said armature to reciprocate along a radial axis that is transverse to said radial plane in response to said control signal.
- 82. (previously presented) The lock of claim 25, further comprised of a component biasing said bar to maintain said first position engaging both said shell and said plug.
- 83. (previously presented) The lock of claim 25, further comprised of a component biasing said electrical operator to maintain said second orientation providing obstruction of said bar.
  - 84. (previously presented) The lock of claim 25, further comprised of:
- a first component biasing said bar to maintain said first position engaging both said shell and said plug; and
- a second component biasing said electrical operator to maintain said second orientation providing obstruction of said bar.



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Claims 85-89. (Canceled)

90. (previously presented) A process of retrofitting a mechanical cylinder lock to form an electromechanical cylinder lock, the process comprising steps of:

providing a mechanical cylinder lock including an outer shell with a bore, a first rotatable barrel located in the bore, and a side bar for preventing and permitting rotation of the barrel within the bore in the shell;

removing the first barrel from the shell;

providing an electronically powered rotatable barrel having an exterior adapted to substantially correspond to the bore in the shell, and including:

at least one electromechanical locking member disposed in the barrel, the electromechanical locking member being positionable to permit the side bar to engage the locking member in a non-barrel blocking position which permits the barrel to rotate with respect to the shell, and the electromechanical locking member also being positionable in a barrel blocking position which blocks rotation of the barrel with respect to the shell; and

an electronically powered drive mechanism cooperating with the electromechanical locking member to selectively move the locking member from the barrel blocking position to the non-barrel blocking position in which the side bar engages the locking member to rotate the barrel and operate the lock; and

securing the electronically powered rotatable barrel in the bore in the shell to form an electromechanical cylinder lock, the lock including control means carried by at least one of the barrel and bore for energizing the electronically powered drive mechanism in response to an authorized attempt to open the lock.

#### 91. (previously presented) A lock, comprising:

a shell containing a hollow recess defining a longitudinal axis and an interior cylindrical surface;

a cylinder plug rotatable around said longitudinal axis while resident within said

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a bar interposed between said shell and said cylinder plug to reciprocate generally along a radial plane between a first position engaging both said shell and said plug while obstructing rotation of said cylinder plug within said recess, and a second position accommodating said rotation when a torque is externally applied to said keyway to rotate said cylinder plug within said shell;

hollow recess, said cylinder plug comprising a first base perforated by a keyway and a second base

separated by an axial length of said cylinder plug from said first base, said second base disposed to

a locking mechanism borne by and rotating with said cylinder plug, said locking mechanism being interposed between said cylinder plug and said bar, and exhibiting a first disposition hindering said reciprocation and, in response to insertion of a key in physical conformance to said locking mechanism, exhibiting a second and different disposition accommodating said reciprocation; and

an electrical operator borne by said cylinder plug and rotatable with said cylinder plug, said electrical operator being electrically operable to respond to a control signal by moving independently of said bar between a first orientation providing obstruction of said reciprocation by said bar and a second and different orientation removing said obstruction.

#### 92. (currently amended) A lock, comprising:

- a shell containing a hollow recess defining a longitudinal axis and an interior cylindrical surface;
- a cylinder plug rotatable around said longitudinal axis while resident within said hollow recess;
- a bar interposed between said shell and said cylinder plug to extend generally along a radial plane between a first state engaging both said shell and said plug while obstructing rotation of said cylinder plug within said recess, and a second state accommodating said rotation;
  - said cylinder plug comprising:
  - a first base and a second base separated by an axial length of said cylinder plug from said first base, said second base configured to support a cam; and

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an electrical operator having a distal base penetrated by a recess, said electrical operator being comprising an armature borne by said cylinder plug and rotatable with said cylinder plug, said electrical operator being electrically operable to respond to a control signal by moving said armature independently of said bar, between one of a first orientation providing obstruction of said rotation during said first state and a second orientation accommodating independent relative movement between said bar and said cylinder plug, and another of said first orientation and said second orientation.

93. (previously presented) The lock of claim 92, further comprised of: a coil wound to provide conduction of an electrical current in response to said control signal; and

said armature comprising an exterior surface exhibiting a rest position between said shell and said cylinder plug, said armature obstructing said rotation absent said conduction, accommodating said rotation during said conduction, and accommodating said rotation until said rotation returns said armature to said rest position after termination of said conduction.

94. (withdrawn) The lock of claim 92, further comprised of:

a coil wound to provide conduction of an electrical current in response to said control signal; and

said armature comprising an exterior surface exhibiting a rest position with said exterior surface extending between said shell and said cylinder plug while said cylinder plug is in alignment with said shell in a locked condition, said armature obstructing said rotation absent said conduction, accommodating said rotation during said conduction by withdrawing from said shell and wholly into said cylinder plug, accommodating said rotation until said rotation returns said armature to said rest position after termination of said conduction, and resuming said rest position when said rotation restores said alignment.

95. (previously presented) The lock of claim 92, further comprised of:



a coil wound to provide conduction of an electrical current in response to said control signal; and

said armature comprising an exterior surface exhibiting a rest position between said bar and said cylinder plug, said armature obstructing said rotation absent said conduction, said armature accommodating said rotation during said conduction, and said armature accommodating said rotation until said rotation returns said armature to said rest position after termination of said conduction.

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96. (previously presented) The lock of claim 92, further comprised of:

a coil wound to provide conduction of an electrical current in response to said control signal; and

said armature comprising an exterior surface exhibiting a rest position with said first orientation while said exterior surface is interposed between said bar and said cylinder plug and obstructs said rotation absent said conduction, said armature assuming said second orientation, withdrawing from said interposition and accommodating said rotation during said conduction, and said armature accommodating said rotation until said rotation returns said armature to said rest position with said first orientation after termination of said conduction.



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97. (previously presented) The lock of claim 92, further comprised of:

a coil wound to provide conduction of an electrical current in response to said control signal; and

said armature comprising an exterior surface exhibiting a rest position with said first orientation while said exterior surface is interposed between said bar and said cylinder plug and obstructs said rotation absent said conduction, said armature assuming said second orientation, withdrawing from said interposition and accommodating said rotation during said conduction, and said armature maintaining said second orientation and accommodating said rotation after said rotation returns said armature to said rest position after termination of said conduction.



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98. (previously presented) The lock of claim 92, further comprised of:

a coil wound to provide conduction of an electrical current in response to said control signal; and

said armature comprising an exterior surface exhibiting a rest position with said first orientation while said exterior surface is interposed between said bar and said cylinder plug and obstructs said rotation absent said conduction, said armature assuming said second orientation, withdrawing from said interposition and accommodating said rotation during said conduction, said armature maintaining said second orientation and accommodating said rotation after said rotation returns said armature to said rest position after termination of said conduction, and said armature resuming said first orientation during renewal of said conduction subsequent to said termination.



99. (previously presented) The lock of claim 92, further comprised of:

a coil wound to provide conduction of an electrical current in response to said control signal; and

said armature comprising an exterior surface exhibiting a rest position while in said first orientation absent said conduction with a first thickness of said exterior surface interposed between said bar and said cylinder plug and with said cylinder plug in alignment with said shell in a locked position, said armature exhibiting said second orientation and accommodating said rotation during said conduction with a second and lesser thickness of said exterior surface permitting movement of said bar relative to said cylinder plug, and said armature accommodating said rotation until said rotation allows said bar to reverse said relative movement and said armature to return to said rest position after termination of said conduction.

100. (previously presented) The lock of claim 92, further comprised of:

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a logic circuit borne by said cylinder plug, generating said control signal in response to a comparison between a code set within said logic circuit and a data signal applied to said logic

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said electrical operator moving between said second orientation and said first



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orientation in response to said control signal.

#### 101. (currently amended) A lock, comprising:

a shell containing a hollow recess defining a longitudinal axis and an interior cylindrical surface;

a cylinder plug rotatable around said longitudinal axis while resident within said hollow recess, said cylinder plug comprising:

a first base and a second base separated by a mass and an axial length of said cylinder plug from said first base, said second base being configured to support a cam, said mass comprising a main body exhibiting a major exterior circumferential surface and a cylindrical sector exhibiting a lesser and minor exterior circumferential surface supplementing said main body to endow said cylinder plug with a substantially cylindrical exterior shape that is removably insertable within said hollow recess;

an electrical operator <u>having a distal base penetrated by a recess, said electrical</u> operator being encased within said cylindrical sector and rotatable with said cylinder plug, said electrical operator being electrically operable to respond to a control signal by moving <u>said distal base</u> between one of a first orientation obstructing rotation of said cylinder plug relative to said shell and a second and different orientation accommodating said rotation, and another of said first orientation and said second orientation; and

a logic circuit encased within said cylindrical sector generating said control signal in response to a comparison between a code set within said logic circuit and a data signal applied to said logic circuit.

#### 102. (currently amended) A lock, comprising:

a shell containing a hollow recess defining a longitudinal axis and an interior cylindrical surface;

a cylinder plug rotatable around said longitudinal axis while resident within said hollow recess, said cylinder plug comprising:

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barrel; and

a first base and a second base separated by a mass and an axial length of said cylinder plug from said first base, said second base bearing means for supporting a cam, said mass comprising a main body exhibiting a major exterior circumferential surface and a cylindrical sector forming a module exhibiting a lesser and minor exterior circumferential surface supplementing said main body to endow said cylinder plug with a substantially cylindrical exterior shape that is removably insertable within said hollow recess; and

an electrical operator <u>having a distal base penetrated by a recess, said electrical operator being</u> encased within and borne by said axial cylindrical sector[[,]] and <u>being</u> rotatable with said cylinder plug, said electrical operator being electrically operable to respond to a control signal by moving <u>said distal base</u> between one of a first orientation causing obstruction of rotation of said cylinder plug within said shell and a second orientation accommodating said rotation, and another of said first orientation and said second orientation;

a bar interposed between said shell and said cylinder plug, spaced-apart from said electrical operator and movable independently of said electrical operator between a first position obstructing said rotation and a second and different position accommodating said rotation.

103. (previously presented) The lock cylinder of claim 85, further comprising:

said side bar comprises a major elongate surface that defines a plane extending approximately radially relative to said barrel; and

said locking member moving on an axis that is approximately perpendicular to said plane.

104. (previously presented) The lock cylinder of claim 89, further comprising:

a side bar that travels along a plane that extends approximately radially relative to said

said locking member moving on an axis that is approximately perpendicular to said

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105. (previously presented) The process of claim 90, further comprising:

orienting said side bar to travel along a plane that extends approximately radially relative to said electronically powered rotatable barrel when engaging said locking member; and positioning said locking member to move on an axis that is approximately perpendicular to said plane when said locking member is selectively moved from said barrel blocking position to said non-barrel blocking position.

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106. (previously presented) The lock of claim 14, further comprising said bar engaging both said shell and said plug during said movement between said plug and said cylinder.

107. (previously presented) The lock of claim 25, further comprising said bar engaging both said shell and said cylinder plug during said rotation.

108. (previously presented) The lock of claim 46, further comprising said bar engaging both said shell and said cylinder plug during said rotation.

109. (previously presented) The lock of claim 64, further comprising said sidebar engaging both said shell and said cylinder plug during said rotation.

110. (previously presented) The lock of claim 65, further comprising said bar engaging both said shell and said cylinder plug during said rotation.

111. (previously presented) The lock of claim 70, further comprising said bar engaging both said shell and said cylinder plug during said rotation.

112. (previously presented) The lock of claim 75, further comprising said bar engaging both said shell and said cylinder plug during said rotation.



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- 113. (previously presented) ) The lock of claim 76, further comprising said bar engaging both said shell and said cylinder plug during said rotation.
- 114. (previously presented) The lock of claim 77, further comprising said bar engaging both said shell and said cylinder plug during said rotation.
- 115. (previously presented) The lock of claim 85, further comprising said side bar engaging both said shell and said barrel during said rotation.
- 116. (previously presented) The lock of claim 91, further comprising said bar engaging both said shell and said cylinder plug during said rotation.

#### Claims 117-118. (Canceled)

- 119. (previously presented) The lock cylinder of claim 85, in which said side bar moves out of the cavity and engages the locking member to rotate the barrel and operate the lock.
- 120. (previously presented) A rotatable lock barrel for insertion into a lock cylinder having a bore formed therein, the barrel comprising:

an elongated, generally cylindrically shaped barrel member having an exterior configured for receipt in a bore of a lock cylinder and an interior containing a plurality of electromechanical locking members, the barrel member having a recess formed therein;

wherein the locking members are disposed in the recess of the barrel member and are substantially entirely contained within the barrel member, each of the locking members including a groove and the locking members being movable to a position in which the grooves of the licking members are aligned;

the recess in said barrel member being configured to receive at least a portion of a movable

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side bar of a lock cylinder to permit the side bar to move into and out of engagement with the grooves of the locking members for selectively permitting and blocking rotation of the barrel member with respect to a lock cylinder when positioned therein;

an electronically powered drive mechanism located within the barrel member for moving the electromechanical locking members to a position in which the grooves of the locking members are aligned.

#### 121. (currently amended) A lock, comprising:

- a shell containing a hollow recess defining a longitudinal axis and an interior cylindrical surface;
- a cylinder plug rotatable around said longitudinal axis while resident within said hollow recess;
- a [[bar]] <u>detent</u> interposed between said shell and said cylinder plug, <u>said</u> detent extending radially from a second recess within said shell into a passage within said cylinder plug to create an obstruction to rotation of said cylinder plug within said hollow recess;

said cylinder plug comprising:

a first base and a second base separated by an axial length of said cylinder plug from said first base, said second base configured to support a cam; and

an electrical operator borne by said cylinder plug and rotatable with said cylinder plug, said electrical operator being electrically operable to respond to a control signal by moving independently of said detent between one of a first orientation accommodating relative movement between said detent and said cylinder plug and a second and different orientation maintaining obstruction of said relative movement by engaging said detent, and another of said first orientation and said second orientation.